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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/658,756 | 09/10/2003 | Martin Alm | 2380-785 | 3405 |

23117 7590 04/26/2007
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| EXAMINER |
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TSEGAYE, SABA

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| ART UNIT | PAPER NUMBER |
|----------|--------------|

2616

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 04/26/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/658,756

Applicant(s)

ALM ET AL.

Examiner

Saba Tsegaye

Art Unit

2616

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date <u>9/10/03 & 3/22/05</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-5 and 15-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Schieder et al. (EP 1139605 A1).

Regarding claim 1, Schieder discloses a method for use in a radio network that employs adaptive antennas, comprising:

for a connection with a first mobile station, determining an amount of information to be transmitted in an uplink direction by the first mobile station to the radio network (page 7, lines line 7-14);

if the amount of uplink information is less than a predetermined value, sending to the first mobile station a permission to transmit a first amount of information (page 7, lines line 14-24);
and

if the amount of uplink information is equal to or exceeds the predetermined value, sending to the first mobile station a permission to transmit a second amount of information greater than the first amount to reduce a number of times permission to transmit must be sent to

Art Unit: 2616

the first mobile station (page 7, lines line 7-56).

Regarding claim 2, Schieder discloses the method, wherein the permission to transmit is a flag (page 3, 0016).

Regarding claim 3, Schieder discloses the method wherein the permission to transmit is an uplink state flag (USF) (page 3, 0016).

Regarding claim 4, Schieder discloses the method wherein if the amount of uplink information is less than the predetermined value, a lower USF granularity is sent to the first mobile station, and if the amount of uplink information is equal to or exceeds the predetermined value, a higher USF granularity is sent to the first mobile station (page 7; 0043-0046).

Regarding claim 5, Schieder discloses the method wherein the lower USF granularity is a granularity of one USF per one radio block to be transmitted uplink, and the higher USF granularity is a granularity of one USF per four radio blocks to be transmitted uplink (page 7; 0043-0046).

Regarding claim 15, Schieder discloses apparatus for use in a radio network and configured to communicate with at least one radio base station that employs adaptive antennas, comprising:

a connection controller for establishing a connection with a first mobile station by way of the radio base station (see fig. 1);

Art Unit: 2616

a data controller configured to perform the following tasks:

determine an amount of information to be transmitted in an uplink direction by the first mobile station to the radio base station (page 7, lines line 7-14);

if the amount of uplink information is less than a predetermined value, generate a message for the first mobile station including a permission to transmit a first amount of information (page 7, lines line 14-24); and

if the amount of uplink information is equal to or exceeds the predetermined value, generate a message for the first mobile station including a permission to transmit a second amount of information greater than the first amount to reduce a number of times a permission to transmit must be sent to the first mobile station (page 7, lines line 7-56).

Regarding claim 16, Schieder discloses the apparatus wherein the permission to transmit is a flag (page 3, 0016).

Regarding claim 17, Schieder discloses the apparatus in claim 16, wherein the permission to transmit is an uplink state flag (USF) (page 3, 0016).

Regarding claim 18, Schieder discloses the apparatus wherein if the amount of uplink information is less than the predetermined value, the message includes a lower USF granularity, and if the amount of uplink information is equal to or exceeds the predetermined value, the message includes a higher USF granularity (page 7; 0043-0046).

Regarding claim 19, Schieder discloses the apparatus wherein the lower USF granularity is a granularity of one USF per one radio block to be transmitted uplink, and the higher USF granularity is a granularity of one USF per four radio blocks to be transmitted uplink (page 7; 0043-0046).

Regarding claim 20 Schieder discloses a radio communication system incorporating, further comprising the radio network, the radio base station that employs adaptive antennas and the first mobile station (see fig. 1).

3. Claims 12-14 and 27-30 are rejected under 35 U.S.C. 102(e) as being anticipated by Ball et al. (US 2003/0174687 A1).

Regarding claims 12 and 27, Ball discloses a method for use in a radio network that employs adaptive antennas, comprising: When two pieces of information, with different amounts of coding, are packet in the same data block and are intended for two different antenna beams, the beam pointing in the direction of the mobile with the least coding should be used for the transmission

determining whether first information with a first amount of coding is to be sent in a downlink direction from the radio network to the first mobile station associated with a first antenna beam (0009);

determining whether second information with a second amount of coding less than the first amount of coding is to be transmitted in a downlink direction from the radio network to a second mobile station associated with a second antenna beam (00099; claim 1);

combining the first and the second information in a data block; and transmitting the data block in the second antenna beam (0007-009).

Regarding claims 13 and 28, Ball discloses the method wherein the first information is permission to transmit uplink information and the second information is payload information, the method further comprising: storing the permission to transmit uplink information for plural mobile stations; storing the payload information for plural mobile stations; determining an antenna beam associated with each of the mobile stations; identifying the permission to transmit and payload information for one of the mobile stations; and sending the permission to transmit and payload information in a data block to the one mobile station using the associated antenna beam (see claim 1 and 0007-0009).

Regarding claims 14 and 29, Ball discloses the method, further comprising: identifying permission to transmit and payload information for different mobile stations associated with a same antenna beam, and sending the permission to transmit and payload information in a data block to the different mobile stations using the same antenna beam (0006-0007).

Regarding claim 30, Ball discloses a radio communications system further comprising the radio network, an antenna array for generating the first and second antenna beams, and the first and second mobile stations, wherein the node is a base station control node coupled to or coincident with the radio base station (see figs. 1 and 6).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 6-9, 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schieder et al.

Schieder discloses all the claim limitation as stated above. Further, Schieder discloses that the GPRS MAC layer is responsible for providing efficient multiplexing of data and control signaling on the uplink and downlink connection. However, Schieder does not disclose transmitting control information, which has different level of coding, for a second subscriber station.

Ball teaches a method for transmitting data between a numbers of subscriber stations, which use the same time slot. A base station transmits payload data which is intended for a first of the subscriber station and control information for second subscriber station in a given time slot with the control information being coded with different level than the payload data.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to implement different level coding that is to be transmitted in downlink directions as taught by Ball into the radio communications system of Schieder in order to provide more efficient communications system that increases the processing capability at the receiver system and allows correct reception of the control information.

Art Unit: 2616

6. Claims 10, 11, 25 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Schieder et al. in view of Forssen et al. (US 5,838,674).

Schieder discloses all the claim limitation as stated above. Further, Schieder discloses that the GPRS MAC layer is responsible for providing efficient multiplexing of data and control signaling on the uplink and downlink connection. However, Schieder does not disclose combining the control information with dummy information.

Forssen teaches a method for transmitting data between a numbers of subscriber stations, which use the same time slot in successive frames jointly. A mobile unit tuning to a broadcast carrier, when positioned at any location within the cell, is able to detect signal energy of either a control signal or one of the concurrently transmitted downlink signals. If the traffic channels defined upon the broadcast carrier are not being used to transmit downlink signals to particular mobile subscriber units, "dummy" signals are instead transmitted (column 4, lines 17-34).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use dummy signal in place of downlink signals as taught by Forssen into the radio communications system of Schieder in order to provide more efficient communications system.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Benveniste (US 2004/0002357 B1) discloses directional antennas and wireless channel access.

Dillinger et al. (US 6,519,240 B1) discloses a method and base station system for channel allocation in a radio communication system.

Art Unit: 2616

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi H. Pham can be reached on (571) 272-3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ST

April 23, 2007



CHI PHAM
SUPERVISORY PATENT EXAMINER

4/24/07